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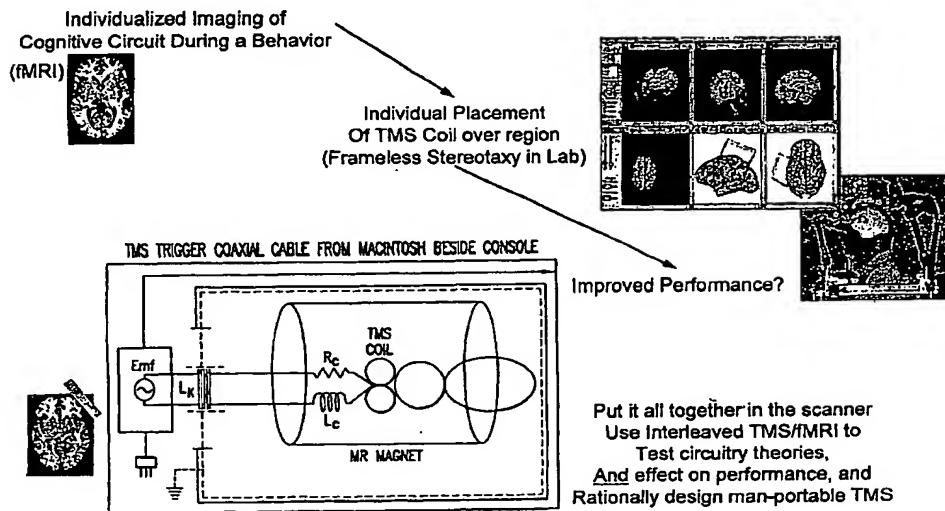
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(54) Title: METHODS AND SYSTEMS FOR USING TRANSCRANIAL MAGNETIC STIMULATION TO ENHANCE COGNITIVE PERFORMANCE



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(57) **Abstract:** Methods and systems are provided for using transcranial magnetic stimulation (TMS) to enhance cognitive performance of at least one subject. At least one neural circuit is located in the brain of the subject, which is activated when the subject performs a predetermined task. Functional magnetic resonance imaging maps may be used to scan and generate maps of the interested neural circuits so as to locate proper neural circuits responsible for a predetermined task. An electromagnetic coil is positioned over a region on the scalp of the subject corresponding to the at least one neural circuit in the brain of the subject. A transcranial magnetic stimulation is delivered from the coil to the region on the scalp of the subject to induce current to flow in the brain that causes neuronal depolarization in the brain and effectuates a change in the performance of the predetermined task by the subject.